

Revision of Tribe Archipini (Tortricidae: Tortricinae) in Northeast China

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Abstract: This study was carried out to clarify the fauna of the tribe Archipini, which belongs to the family Tortricidae in Northeast China. In the present study, fifty-four species of the tribe were recognized and enumerated. Based on the present study, two species, *Archips viola* Falkovitsh and *Choristoneura evanidana* (Kennel), are reported for the first time from China. Also five species, *Archips dichotomus* Falkovitsh, *Archips similis* (Butler), *Argyrotaenia angustilineata* (Walsingham), *Choristoneura longicellana* (Walsingham), and *Gnorismoneura orientis* (Filipjev), are newly recorded from Northeast China. All available information, including host plant, distributional range, and biological information, are listed.

Keywords: Systematic; Lepidoptera; Tortricidae; Archipini; Northeast China

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Introduction

The tribe Archipini, belonging to the family Tortricidae, is small to medium sized moth. They show the most typical characteristics of the family, for which, in most species, the costal margin of the forewing is sinuous to form a bell, when resting. Its distributional range is rather cosmopolitan. The present study focuses on the systematics and faunistics of the tribe Archipini in the Northeast China, especially on the provinces Heilongjiang, Jilin, Liaoning, and northeastern part of Inner Mongolia.

The first review of Tortricidae in China was published by Liu and Bai (1977), in which thirty-one species of the tribe Archipini were listed as them to be distributed in the Northeast China. In "Iconographia Heterocerorum Sinicorum", Liu (1983a) provided a list of 186 species of the family Tortricidae and 14 species of the family Cochylidae from China. Among them, thirty-seven species of the tribe were listed. Later the number of species has been added by some reports (Liu 1987, Bai 1992). In "Fauna Sinica volume 27", Liu and Li (2002) published a full revision of this family in China, with illustrations for the species, of which 136 species of the tribe Archipini were included. Of these, forty-seven species are listed from the Northeast China.

In the present study, in total, fifty-four species in the Northeast China are recognized and listed. Among them, two species, *Archips viola* Falkovitsh and *Choristoneura*

evanidana (Kennel), are reported for the first time from China. Also five species, *Archips dichotomus* Falkovitsh, *A. similis* (Butler), *Argyrotaenia angustilineata* (Walsingham), *Choristoneura longicellana* (Walsingham), and *Gnorismoneura orientis* (Filipjev), are newly recorded from Northeast China. Based on the present study, five species are recorded as new to the local fauna as follows: two species, *Archips asiaticus* (Walsingham), *A. fuscocupreanus* Walsingham, are new to Heilongjiang; three species, *Argyrotaenia puchellana* (Haworth), *Capua vulgana* (Frölich), and *Syndemis musculana* (Hübner), are new to Inner Mongolia. Based on the present study, the authors enumerated all the known species of the tribe in this region with their locality, host plant, and available biology.

All the material examined for the present study was mainly based on the collection of Entomology Division, Northeast Forestry University, Harbin, China. Additional collecting activities were carried out by the authors in 2002. Abbreviations used in the present paper are as follows: HL: Province Heilongjiang, JL: Province Jilin, LN: Province Liaoning, IM: Inner Mongolia, NEFU: Northeast Forestry University, ex: Number of specimens.

List of species

Tribe Archipini (Pierce & Metcalfe, 1922) Obraztsov, 1942

1. *Adoxophyes orana beijingensis* Zhou et Fu, 1997

Previous record. Zhou et Fu 1997, Liu & Li 2002.

Distribution. China: Liaoning, Hebei, Shandong; Japan.

Host plants. *Malus pumila* Mill. and *Prunus persica* (Liu & Li 2002).

Remarks. It has three generations a year in the Province Liaoning and overwinters as larva under bark of the host

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trees. The overwintered larvae start feeding in May of the next year. Adults appear from mid-June to late June (1st generation), from late June to early August (2nd generation), and early September to mid-September (3rd generation) respectively. Females lay eggs on surface of leaves or fruits of host plants (Liu & Li 2002).

2. *Aphelia albidula* Bai, 1992

Previous record Bai 1992, Liu & Li 2002.

Distribution. China: Jilin (Jingyuetan Forest Farm), Beijing (Mt. Baihuashan).

3. *Aphelia paleana* (Hübner, 1793)

Material examined. HL: 1 ♂, 1 ♀, Liangshui, 28-29 June 1996, Yan SC.

Distribution. China: Heilongjiang (Liangshui), Beijing; Russia; Europe.

Host plants. *Avena sativa* L., *Calamagrostis epigeios* (L.) Roth, *Caltha palustris* L., *Cephalonoplos segetum*, *Lnula japonica* Thunb., *Lonicera japonica* Thunb., *Luzula* Dc., *Petasites* Mill (leaf), *Phleum pratense* L., *Plantago asiatica* L., *Plantago asiatica* L., *Quercus* sp., *Vaccinium vitis-idaea* L., and sweet scabious (Liu 1983a, Liu & Li 2002).

4. *Archips asiaticus* (Walsingham, 1900) (Fig. 1)

Wingspan 18 mm in male. In male, it can be distinguished by the pale ground color of the basal portion in forewing.

Male genitalia. Uncus short. Tegumen large. Valva broad, round dorsally; sacculus well sclerotized with a projection medially. Aedeagus long, slightly bent.

Material examined. HL: 1 ♂, Laoyeling, 4 July 1998, Yan SC.

Distribution. China: Heilongjiang (Laoyeling), Jilin (Mt. Changbaishan), Beijing (Miyun, Mt. Baihuashan), Gansu (Tianshui), Shandong (Mt. Taishan), Jiangsu (Yangzhou), Zhejiang (Hangzhou, Mt. Tianmushan), Anhui (Mt. Huangshan, Mt. Jiuhuashan), Jiangxi (Mt. Lushan, Fengxin, Dayu County, Mt. Jiulianshan), Hunan (Xupu, Dajiangkou, South Hunan, East Hunan, West Hunan), Sichuan (Mt. Emeishan), Fujian; Korea (S, N); Japan; Russia (Siberia).

Host plants. *Akebia quinata* Decne, *Ipomoea aquatica* Forsk, *Malus* spp., *Prunus* spp., *Pyrus* sp., *Sinomenium acutum* Rehder *et* Wils., *Sorbus* sp., and *Prunus* sp. (Liu & Li 2002).

Remarks. It has two or three generations per year and overwinters as larva. Moths fly during June to August (Liu 1983a). In Province Fujian, it has six generations per year and overwinters in the larval stage within its leafroller. They resume to act in May in the following spring. The larva mainly feed on fruits and new leaves of host plants (Liu & Li 2002). This is a first record for the Province Heilongjiang.

5. *Archips breviplicanus* Walsingham, 1900

Material examined. HL: 1 ♂, Laoshan, Mt. Maoershan, 21 July 2002, Byun BK & Li CD; 3 ♀, Mt. Maoershan, 12-13

July 1974; 1 ♂, Liangshui, 15 July 1996; 2 ♂, 1 ♀, Heli, Mid-July 1995, 1 ♂, 3 July 1996, Yan SC. JL: 1 ♂, Antu, 25 August 2002, Byun BK & Li CD.

Distribution. China: Heilongjiang (Dailing, Mt. Maoershan, Liangshui, Heli), Jilin (Mt. Changbaishan, Antu); Korea (S); Japan; Russia (Ussuri, Amur).

Host plants. *Malus pumila* Mill, *Pyrus* sp. (Liu 1983a), *Alnus* sp., *Glycine max* Merr., *Morus* spp. (Liu & Li 2002).

Remarks. It has two or three generations per year and overwinters as larva. Moths fly in June and August (Liu 1983a, Liu & Li 2002).

6. *Archips capsigeranus* (Kennel, 1901)

Material examined. HL: 3 ♂, Liangshui, 13-15 July 1996, Yan SC.

Distribution. China: Heilongjiang (Dailing, Liangshui), Shaanxi (Ningshan), Jiangxi (Fengxin), Sichuan (Mt. Qingchengshan, Mt. Emeishan); Korea (S, N); Japan; Russia (Pimorye, Ussuri, Askold).

Host plants. *Abies firma* S. *et* Z., *Abies nephrolepis* Max., *Acer* spp., *Machilus thunbergii* S. *et* Z., *Pieris polita* Smith *et* J. F. Jeff, *Prunus* spp., *Persea americana* (Liu 1983a, Liu & Li 2002).

Remarks. It has two generations in China. Moths fly in June and September (Liu & Li 2002).

7. *Archips crataeganus endoi* Yasuda, 1975

Distribution. China: Heilongjiang (Dailing), Jilin (Mt. Changbaishan), Shaanxi, Sichuan (Mt. Qingchengshan); Korea (S); Japan.

Host plants. *Betula* sp., *Crataegus pinnatifida* B., *Populus* spp., *Pyrus* sp., *Quercus* sp., *Salix koreensis* A., *Sorbus* sp., *Tilia* spp., *Ulmus* sp. (Liu 1983a, Liu & Li 2002).

Remarks. It has one generation per year and overwinters as egg at branch. Larvae and adults also can be found in early summer (Liu 1983a).

8. *Archips decretanus* (Treitschke, 1835)

Material examined. HL: 5 ♂, Laoyeling, 4 July 1996, 1 ♂, Early July 1995; 1 ex, Heli, Mid-July 1995, 1 ♂, Early July 1995; 4 ♂, Jianlagou, 29 June 1998, Yan SC; 1 ♂, Mt. Maoershan, 12 July 1974.

Distribution. China: Heilongjiang (Yichun, Mudanjiang, Laoyeling, Heli, Jianlagou), Jilin (Baichengzi, Mt. Changbaishan), Liaoning (Shenyang, Hunhe); Russia; Europe.

Host plants. *Betula* sp., *Malus pumila* M., *Myrica rubra* S. *et* Z., *Sambucus chinensis* Lindl., *Sorbus amabilis*, *Vaccinium vitis-idaea* L. (Liu 1983a, Liu & Li 2002).

9. *Archips dichotomus* (Falkovitsh, 1965) (Fig. 2)

Archips dichotomus Falkovitsh, 1965, Ent. Obozr., 44: 417, figs. 5, 6; Liu, 1987, Sinozoologia, 5: 129; Liu & Li, 2002, Fauna Sinica, (Insecta) 27: 156.

Wingspan 24 mm in male. The present species is similar to *A. xylostenus* (L.), but it can be distinguished from the latter by rather dark color in pattern.

Male genitalia. Uncus somewhat long. Tegumen narrow. Valva rounded dorso-ventrally; sacculus narrow with a short dent at end. Aedeagus long, rather narrower beyond middle.

Material examined. HL: 1 ♂, Heli, Mid-July, 1995, Yan SC.

Host plants. *Aralia mandshurica* R., *Juglans mandshurica* M., *Armenica mandshurica* (K.) K., *Fraxinus rhynochoplylla* H., *Lespedeza bicolor* T., *Maackia amurensis* R., *Ulmus propinqua* K., and *Salix rorida* L. (Liu & Li 2002).

Distribution. China: Heilongjiang (Heli), Sichuan (Mt. Qingchengshan); Korea (N); Russia (Primorye).

Remarks. This species is reported for the first time from NE China in this study.

10. *Archips fumosus* Kodama, 1960

Distribution. China: Liaoning (Gujijianzi), Qinghai, Tibet (Chayu); Japan.

Host plants. *Abies nephrolepis* Max., *Picea usperata* Mast, *Taxus* L. (Liu & Li 2002).

11. *Archips fuscopreanus* Walsingham, 1900 (Fig. 3)

Wingspan 16-22 mm in male.

Male genitalia. Uncus rather long. Tegumen narrow. Valva broad, rounded dorsally, shortly drooped ventrally at base, sacculus narrow with a sub-triangular dent near end. Aedeagus long, with several dent near apex ventrally.

Material examined. HL: 1 ♂, Jianlagou, 30 June 1998; 1 ♂, Liangshui, Early August 1995; 1 ♂, Laoyeling, Early July 1995, Yan SC.

Distribution. China: Heilongjiang (Jianlagou, Liangshui, Laoyeling), Liaoning (Zhuanghe); Korea (S); Japan; Russia (Primorye, Is. Kuril).

Host plants. *Acer* spp., *Alnus* spp., *Betula* spp., *Castanea* spp., *Diospyros* spp., *Erigeron* spp., *Fragaria* spp., *Glycine* spp., *Juglans* sp., *Malus* sp., *Morus* spp., *Phaseolus* spp., *Prunus* sp., *Pyrus* sp., *Quercus* spp., *Rosa* sp., *Rubus* sp., *Salix* spp., *Sorbus* spp., *Ulmus* spp. (Liu & Li 2002).

Remarks. Moths fly in June to July in China: Liu & Li 2002). Based on this study, it is recorded for the first time from the Province Heilongjiang.

12. *Archips ingentanus* (Christoph, 1881)

Material examined: HL: 1 ♂, Laoyeling, Late June 1995, 1 ♀, Early July 1995, 7 ♂, 4 July, 1996; 2 ♀, Liangshui, 15 July 1996; 3 ♀, Heli, Mid-July 1995, Yan SC.

Distribution. China: Heilongjiang (Yichun, Dailing, Laoyeling, Liangshui, Heli); Korea (S, N); Japan; Russia (Ussuri, Amur, Sakhalin, Primorye, Is. Kuril).

Host plants. Needle leaved tree: *Abies firma* S. et Z., *Abies nephrolepis* Max. Broad leaved tree: *Camellia* spp., *Malus pumila* M., *Pyrus* sp., *Quercus* spp., Herbaceous plants: *Artemisia lavandulaefolia* DC., *Ipomoea aquatica* Forsk, *Petasites* Mill, *Urtica* L., *Plantago asiatica* L., *Lilium* sp. (Liu 1983a, Liu & Li 2002).

13. *Archips issiki* Kodma, 1960

Material examined. HL: 1 ♂, Mt, Maoershan, 9 August 1996, Yan SC; 1 ♂, Wuying, 16 August 1984.

Distribution. China: Heilongjiang (Dailing, Mt, Maoershan, Wuying), Liaoning (Shenyang), Shandong (Mt. Taishan), Shaanxi (Ningshan), Xinjiang; Korea (S); Japan; Russia (Ussuri, Primorye).

Host plants. *Abies concolor*, *Abies firma* S. et Z., *Abies sachalinensis*, *Larix kaempferi* C. (Liu & Li 2002).

14. *Archips nigricaudanus* (Walsingham, 1900)

Distribution. China: Liaoning (Dandong); Korea (S, N); Japan; Russia (Ussuri, Sakhalin, Siberia).

Host plants. *Diospyros* L., *Malus* spp., *Morus* spp., *Pyrus* sp., *Quercus* sp. (Liu & Li 2002).

Remarks. Moths fly from April to June in China (Liu & Li 2002).

15. *Archips oporanus* (Linnaeus, 1758)

Material examined. HL: 1 ♂, Laoshan, Mt. Maoershan, 20 July 2002, Byun BK & Li CD; 1 ♂, Mt. Maoershan, 1 July 1998; 4 ♂, 3 ♀, Liangshui, 15 July 1996; 4 ♂, 1 ♀, Laoyeling, Early July 1995, 1 ♂, Early August 1995; 1 ♂, 1 ♀, 4 July 1996; 1 ♂, 1 ♀, Heli, Mid-July 1995, Yan SC; 1 ♂, Wuying, 18 July 1980.

Distribution. China: Heilongjiang (Yichun, Dailing, Wuying, Mt. Maoershan, Liangshui, Laoyeling, Heli), Liaoning (Shenyang); Korea (S, N); Japan; Russia (Primorye); Europe.

Host plants. *Abies nephrolepis* Max., *Cedrus deodara* (Roxb.) Loudon, *Cephalotaxus* Sieb. et Zucc., *Larix leptolepis* (S. et Z.) Gordon, *Picea usperata* Mast, *Pinus* spp., *Tsuga chinensis* (Franch.) Pritz. (Liu & Li 2002).

Remarks. It has one or two generations a year and overwinters as young larva within a rolled leaf near axillary bud. They resume to feed on host plant in early May. Larvae tie two sets of twin needle leaves and attach it's middle part to the branch of host plant. One larva is able to eat seven or eight set of twin needle leaves in a day. Pupation takes place in mid-June. Moths fly in late June. The female lay eggs on surface of trunk of host plants (Liu 1983a, Liu & Li 2002).

16. *Archips pulcher* (Butler, 1879)

Distribution. China: Heilongjiang (Yichun); Korea (S); Japan; Russia (Primorye).

Host plants. *Abies nephrolepis* Max., *Picea usperata* Mast. (Liu & Li 2002).

Remarks. It has one generation per year and overwinters as young larva in Heilongjiang. Pupation takes place in mid-June and emerges in July (Liu 1983a, Liu & Li 2002).

17. *Archips rosanus* (Linnaeus, 1758)

Distribution. China: Liaoning (Dandong), Qinghai; Asia Minor; Southeast Russia; Sweden; N. America.

Host plants. *Crataegus pinnatifida* B., *Humulus lupulus* L., *Ligustrum lucidum* Ait., *Malus pumila* M., *Pyrus* sp., *Ranunculus arvensis*, *Rhododendron simsii* Phlanch, *Rosa* sp. (Liu & Li 2002).

Remarks. The females lay eggs on the bark during June to July. It overwinters as egg. They hatch in March to April in the next year. Pupation takes place in April to May and the adults emerge in two weeks. The larva feed on the host plants within a bun-shaped shelter (Liu & Li 2002).

18. *Archips similis* (Butler, 1879) (Fig. 4)

Cacoecia similis Butler, 1879, Illust. Typical Spec. Lepid. Heter. Cool. Br. Mus., 3: 79, pl. 60: 4.

Archips similis: Liu, 1987, Sinozoologia, 5: 127; Liu & Shen, 1992, Icon. of For. Ins. Hunan Prov. China: 692; Liu & Li, 2002, Fauna Sinica, (Insecta) 27: 166.

Wingspan 19 mm in male, 22 mm in female.

Male genitalia. Uncus rather long. Valva broad, sub-triangular, scculus thin, well sclerotized, fairly long reaching over the dorsal end of valva, with a sharp apex. Aedeagus long, slender, with a long, narrow projection at apex.

Female genitalia. Sterigma rather broad; ostium bursae broad at entrance followed by thick tubal shaped part, corpus bursae rounded with an hook-shaped signum.

Material examined. HL: 1 ♀, Zalong, Qiqihaer, 8 August 2002, Byun BK & Li CD; 1 ♂, Mt. Maoershan, 1 July 1998, Yan SC.

Distribution. China: Heilongjiang (Qiqihaer, Mt. Maoershan), Shandong, Anhui (Xuancheng), Jiangsu, Jiangxi (Mt. Lushan), Hunan (North, Central, East), Fujian (Chong'an), Guangdong (Guangzhou); Japan.

Host plants. *Pinus* sp., *Picea usperata* Mast, *Abies nephrolepis* Max., *Cedrus deodara* (Roxb.) Loudon, *Cryptomeria* spp., *Taxus* L. (Liu & Li 2002).

Remarks. It has two generations per year and overwinters as young larva. Pupation takes places in May – June and August in next year. Adults appear in June and September respectively (Liu & Li 2002). The species is reported for the first time from NE China in this study.

19. *Archips spinatus* Liu, 1987

Previous record. Liu 1987, Liu & Li 2002.

Distribution. China: Liaoning (Dandong).

20. *Archips subrufanus* (Snellen, 1883)

Material examined. HL: 3 ♂ ♂, Mt. Maoershan, 11 July 1974; 3 ♂ ♂, Laoshan, Mt. Maoershan, 2 July 1998; 19exx, Heli, Mid-July 1995; 2 ♂ ♂, Laoyeling, Early August 1995, Yan SC; 1 ♂, Xibian, 10 July 1980.

Distribution. China: Heilongjiang (Dailing, Mt. Maoershan, Boli, Laoyeling, Xibian), Jilin (Mt. Changbaishan); Korea (S, N); Japan; Russia (Primorye); Europe.

Remarks. The moths appear in July to mid-September (Liu & Li 2002).

21. *Archips viola* (Falkovitsh, 1965) (Fig. 5)

Archips viola Falkovitsh, 1965, Ent. Obozr. 44: 415, fig. 3, 4. TL: Russia (Primorye).

Archips purpuratus Kawabe, 1965, Tyô to Ga., 14: 16, figs. 1, 2, 39, 40, 70.

Wingspan 22 mm in male. This species is easily distinguished from the allied species by very characteristic color and pattern of forewing.

Male genitalia. Uncus more or less broad terminally. Valva semi-circular, slightly tapered dorsally; sacculus with a short free termination. Aedeagus broad at base, then slightly narrower towards apex, with a sharp termination.

Material examined. HL: 5 ♂ ♂, Liangshui, Early August 1995, Yan SC.

Distribution. China: Heilongjiang (Liangshui); Korea (S, N); Japan; Russia (Primorye, Ussuri); Central Asia.

Host plants: *Acer rufinerve* S. & Z., *Alnus hirsuta* R., and *Populus sieboldii* M. (Yasuda 1975). *Alnus hirsuta* R., *Aralia mandschurica* R., *Carpinus cordata* B., *Corylus heterophylla* F. & B., *Juglans mandschurica* M., *Lespedeza bicolor* T., *Lonicera edulis* T., *Pirus ussuriensis* M., *Quercus mongolica* F., *Sorbaria sorbifolia* A., *Syringa amurensis* R., and *Ulmus laciniata* M. in Russia (Kuznetsov 1973). *Corylus heterophylla* F. (Byun *et al.* 1998).

Remarks. The species is reported for the first time from China in this study.

22. *Archips xylosteanus* (Linnaeus, 1758)

Distribution. China: Heilongjiang (Yichun), North and Central China; Korea (S); Japan; Russia (Primorye, South Sakhalin, Is. Kurile); Central Asia; Europe.

Host plants. *Alnus japonica* var. *rufa* Nak., *Betula* sp., *Camellia* spp., *Citrus* spp. (orange), *Fraxinus mandschurica* R., *Lonicera japonica* Thunb., *Malus pumila* M., *Myrica rubra* S. et Z., *Pinus* spp., *Populus* spp., *Prunus armeniaca* var. *ansu* Max., *Pyrus* sp., *Quercus* sp., *Salix koreensis* A., *Sorbus* sp., *Tilia* spp., *Rubus idaeus* var. *microphyllus* Turcz., *Ulmus* sp., *Hypericum monogynum* L., *Prunus salicina* Lindl. (Liu 1983a).

Remarks. It has one generation per year in the Northeast and North China, and overwinters as egg at branch of host plants. One female can lay 200-300 eggs with several egg masses containing 14-29 eggs. The larva hatches, when the secondary sprouts are germinating, and then disperse with hanging in the cobweb from their mouth. The young larvae first attack to the new buds, and then feed on flowers and young fruits. They tie the leaves to make a tube-shaped shelter, which is open to each side, and they move around it and attack to their host plants. In June, they begin to pupate and emerge in July (Liu 1983a, Liu & Li 2002).

23. *Argyrotaenia angustilineata* (Walsingham, 1900) (Fig. 6)

Argyrotaenia angustilineata Walsingham, 1900, Ann. Mag. Nat. Hist., (7)5: 484 (*Epagoge*); Liu & Shen, 1992: 694; Liu & Li, 2002: 146.

Wingspan 17 mm in female. This species is similar to *A. lirata* (Christoph) in appearance, but can be distinguished by rather light coloration of forewing and different shape of genitalia.

Female genitalia. Sterigma cup-shaped, narrow. Antrum broad at entrance, rather long. Ductus bursae fairly long, slightly sclerotized near corpus bursae. Signum well sclerotized, long, capitate.

Material examined. HL: 1 ♀, Laoyeling, Early July 1995, Yan SC.

Distribution. China: Heilongjiang (Laoyeling), Anhui (Mt. Huangshan), Jiangxi, Hunan (Mt. Tianpingshan of Sangzhi County, West Hunan); Korea (S); Japan.

Remarks. The species is reported for the first time from NE China in this study.

24. *Argyrotaenia congruentana* (Kennel, 1901)

Material examined. HL: 4 ♂♂, 2 ♀♀, Laoyeling, 4 July 1998, Yan SC, 1 ♀, Early July 1995, Yan SC; 2 ♂♂, Laoshan, Mt. Maoershan, 2 July 1998, Yan SC; 8 ♂♂, 5 ♀♀, Mt. Maoershan, 1 July 1998, Yan SC.

Distribution. China: Heilongjiang (Mt. Maoershan, Laoyeling), Jiangxi, Hunan (West Hunan), Sichuan (Mt. Qingchengshan), Yunnan, Fujian (Putian); Korea (S); Japan; Russia (Ussuri); India (Assam).

25. *Argyrotaenia lirata* (Christoph)

Material examined. HL: 1 ♂, Laoshan, Mt. Maoershan, 23 July 2002, Byun BK & Li CD; 6 ♂♂, 2 ♀♀, Laoyeling, Early July 1995, Yan SC; 1 ♂, Liangshui, Early August 1995, Yan SC.

Distribution. China: Heilongjiang (Mt. Maoershan, Laoyeling, Liangshui), Shaanxi, Anhui, Jiangxi, Hunan (West Hunan), Fujian, Qinghi, Sichuan, Yunnan; Korea (S, N); Japan; Russia (Amur); India.

Host plants. Fallen leaves and dead branch of dicotyled plants (Liu & Li 2002).

26. *Argyrotaenia pulchellana* (Haworth, 1811)

Material examined. HL: 1 ♂, Mt. Maoershan, Early July, 1997; 1 ♂, Jiagedaqi, Early June 1996, Yan SC. IM: 1 ♂, 2 ♀♀, Alihe, Mid-June 1995; 3 ♂♂, 11 June 1997, Yan SC.

Distribution. China: Heilongjiang (Mudanjiang, Jiagedaqi), Inner Mongolia (Alihe), Qinghai (Xining); Europe; Asia Minor.

Host plants. *Cunninghamia* spp., *Prunus* spp., *Senecio* L., *Vaccinium* L. (Liu & Li 2002).

Remarks. It is recorded for the first time from Inner Mongolia in this study.

27. *Capua vulgana* (Frölich, 1828) (Fig. 7)

Wingspan 16-18 mm.

Male genitalia. Uncus well sclerotized. Valva elongate, rounded terminally; sacculus well sclerotized, rather broader basally with acute termination, a thick and sharp process near termination. Aedeagus slightly curved, with dents at apex dorsally.

Female genitalia. Sterigma cup-shaped. Antrum indistinct. Ductus bursae rather long. Corpus bursae small without signum.

Material examined. IM: 32 exx, Alihe, Mid-June 1995, Yan SC. HL: 1 ♀, Liangshui, 28 June 1996; 1 ♂, Jiagedaqi, Early June 1996, 1 ♂, 11 June 1996, Yan SC.

Distribution. China: Heilongjiang (Yichun, Wuying, Dailing, Boli, Liangshui, Jiagedaqi), Inner Mongolia (Alihe), Jilin (Mt. Changbai), Sichuan (Wolong, Batang, Emei), Shandong (Mt. Taishan), Taiwan; Korea (S, N); Japan; Russia; Asia Minor; Europe.

Host plants. *Alnus japonica* S. et Z., *Carpinus* sp., *Rubus idaeus* var. *microphyllus* Turcz., *Sorbus* sp., *Vaccinium vitis-idaea* L. (Liu 1983a, Liu & Li 2002).

Remarks. It is recorded for the first time from Inner Mongolia in this study.

28. *Choristoneura adumbratana* (Walsingham, 1900)

Material examined. HL: 1 ♀, Laoshan, Mt. Maoershan, 20 July 2002, Byun BK & Li CD; 5 ♂♂, 2 July 1998, Yan SC; 2 ♂♂, 3 ♀♀, Mt. Maoershan, 1 July 1998, Yan SC; 2 ♂♂, Laoyeling, 4 July 1998, Yan SC; 1 ♂, Jianlagou, 30 June 1998, Yan SC.

Distribution. China: Heilongjiang (Mt. Maoershan, Laoyeling, Jianlagou), Jilin; Korea (S, N); Japan.

Host plants. *Malus baccata* B., *M. pumila* M., *Prunus yedoensis* M., *Salix* spp. (Liu & Li 2002).

Remarks. Adults appear in June to August (Liu & Li 2002).

29. *Choristoneura diversana* (Hübner, 1817)

Material examined. HL: 1 ex, Wuying, 29 June 1981; 1 ♂, Liangshui, 28 June 1996, 1 ♂, Early August 1995, Yan SC.

Distribution. China: Heilongjiang (Yichun, Dailing, Wuying, Liangshui); Korea (S, N); Japan; Russia; Europe.

Host plants. *Abies nephrolepis* Max., *Acer* spp., *Alnus japonica* S. et Z., *Alnus* spp., *Betula* spp., *Fagus* sp. (Liu 1983a). *Fagus* sp., *Larix leptolepis* (S. et Z.) Gordon, *Lepidodermis potaninii* Batal, *Lonicera japonica* Thunb., *Picea jezoensis* Carr., *Picea ussuriensis* Mast, *Populus* spp., *Prunus padus* L., *Prunus* sp., *Pyrus* sp., *Quercus* sp., *Salix koreensis* A., *Syringa* L., *Syringa reticulata* var. *mandshurica* (Max.) Hara, *Ulmus* sp. (Liu & Li 2002).

Remarks. It has one generation a year in Dailing, Heilongjiang and overwinters as larva. They resume to feed on the host plants in mid-late May and pupate in mid-June. Adults emerge in late June (Liu 1983).

30. *Choristoneura evanidana* (Kennel, 1901) (Fig. 8)

Cacoecia evanidana Kennel, 1901: 214. TL: Russia (As-kold).

Wingspan 21-23mm in male.

Male genitalia. Uncus broad, short, rounded terminally. Valva broad, semi-triangular; sacculus thin, well sclerotized, developed along the ventral margin of valva. Aedeagus long, with an acute termination.

Female genitalia. Papillae analis broad. Sterigma cup-shaped, rather broader anteriorly. Antrum well sclerotized, short. Ductus bursae very long. Corpus bursae semi-ovate, with a hook-shaped signum near entrance.

Material examined. HL: 1 ♂, Laoshan, Mt. Maoershan, 20 July 2002, Byun BK & Li CD, 3 ♂♂, 2-4 July 1998, Yan SC; 1 ♂, Mt. Maoershan, 1 July 1998, Yan SC; 1 ♂, 1 ♀, Heli, Mid-July 1995, Yan SC. LN; 1 ♀, Mt. Qianshan, 16 July 1998, Yan SC.

Distribution. China: Heilongjiang (Mt. Maoershan, Heli), Liaoning (Mt. Qianshan); Korea (S, N); Russia (Ussuri).

Host plants. *Abies holophylla* M., *Acer tegmentosum* M., *Aralia manshurica*, *Armeniaca manschurica*, *Betula dahurica* P., *Corylus heterophylla* F., *Corylus mandshurica* R., *Lespedeza bicolor* T., *Maackia amurensis* R. & M., *Phellodendron amurense* R., *Philadelphus schrenkii* R., *Philadelphus tenuifolius* R. & M., *Quercus mongolica* F., *Rhododendron mucronulatum* T., *Schizandra chinensis*, *Spiraea betulifolia* P., *Syringa amurensis* R., and *Tilia amurensis* R. have been known from Russia (Kuznetsov 1973).

Remarks. The present species is reported for the first time from China in this study.

31. *Choristoneura lafauriana* (Ragonot, 1875)

Material examined. HL: 1 ♂, Heli, Mid-July 1995, Yan SC.

Distribution. China: Heilongjiang (Dailing, Mt. Maoershan, Mudanjiang, Heli), Jilin (Mt. Changbaishan), Liaoning; Korea (S); Japan; Russia; Europe.

Host plants. *Myrica rubra* S. et Z., Various broad leaved trees, shrubs, and herbaceous plants (Liu 1983a). *Larix leptolepis* (S. et Z.) Gordon (Liu & Li 2002).

Remarks. Larvae feed on the host plants in June to July. Moths appear during July to August. It attacks mainly to *Larix leptolepis* (S. et Z.) Gordon, and also feed on various shrubs (Liu 1983a, Liu & Li 2002).

32. *Choristoneura longicellana* (Walsingham, 1900) (Fig. 9)

Archips longicellana Walsingham, 1900: 378; Liu & Bai, 1977: 15; Liu, 1983: 33; Liu & Li, 2002: 210.

Cacoecia disparana Kennel, 1901, Dt. Ent. Z. Iris 13: 216.

Wingspan 24 mm in male, 28 in female. The species is similar to *C. adumbratana* in appearance, but can be distinguished by the modified sacculus of the male genitalia.

Male genitalia. Uncus rather short, broader terminally. Valva broad, rounded dorsally; sacculus slender, well sclerotized, having a sharp apex, with a dorsal projection beyond middle. Aedeagus long with sharp apex.

Female genitalia. Sterigma small. Antrum strongly sclerotized, narrow, relatively short. Ductus bursae very long, with weak sclerite inner side. Corpus bursae semi-ovate, with a large signum near entrance.

Material examined. HL: 1 ♂, Liangshui, Early August 1995, Yan SC. IM: 1 ♀, Alihe, Mid-June 1995, Yan SC.

Host plants. *Malus pumila* Mill., *Pyrus* sp., *Crataegus pinnatifida* B., *Corylus heterophyllus*, *Quercus* sp., *Maackia*

amurensis R. et M. (Liu 1983a).

Distribution. China: Heilongjiang (Liangshui), Inner Mongolia (Alihe), Shandong, Anhui, Hubei, Hunan, Jiangxi, Jiangsu, Sichuan, Yunnan; Korea (S, N); Japan; Russia (Amur, Ussuri).

Remarks. It has two generations a year and overwinters as larva on the dead leaves, wound of braches, or between the branches. Moths appear in May-June (1st generation) and August-September (2nd generation) respectively. Female lay eggs on the surface of leaves (Liu 1983a, Liu & Li 2002). The species is reported for the first time from NE China in this study.

33. *Choristoneura luticostana* (Christoph, 1888)

Material examined. HL: 7 ♂♂, 1 ♀, Laoyeling, Early July 1995, Yan SC, 1 ♂, Late June 1995, Yan SC; 1 ♂, Laoshan, Mt. Maoershan, 13 June 1998, Yan SC.

Distribution. China: Heilongjiang (Dailing, Laoyeling, Mt. Maoershan), Jilin (Mt. Changbaishan); Korea (S, N); Japan; Russia (Siberia).

Host plants. *Malus pumila* M., *Pyrus* sp., *Quercus* sp., *Rosa* sp., *Salix koreensis* A., *Xylosma* sp. (Liu 1983a, Liu & Li 2002).

34. *Choristoneura murinana* (Hübner, 1796-1799)

Distribution. China: Heilongjiang (Dailing), Gansu (Tianzhu), Qinghai (Datong), Taiwan; Russia; Europe.

Host plant. *Abies nephrolepis* Max. (Liu & Li 2002).

Remarks. It has one generation per year and overwinters as young larva. In July, the adult density is most high in whole emergence period. Female lay eggs on needle. The young larvae feed on new shoot of host plants. It overwinters as 2nd instar larva within barks. Larvae resume to feed on host plant as they germinate. Pupation takes place on the ground near the host plants (Liu 1983a, Liu & Li 2002).

35. *Clepsis pallidana* (Fabricius, 1776)

Material examined. HL: 1 ♀, Harbin, 9 July 1964, 1 ♀, 17 June 1964; 2 ♂♂, Zalong, Qiqihaer, 8 August 2002, Byun BK & Li CD; 1 ♀, Mt. Maoershan, 14 June 1990, 1 ♂, 18 September 1976, 1 ♂, 18 July 1974; 1 ♀, Laoyeling, Early August 1995, Yan SC, 1 ♀, Late June 1995, Yan SC.

Distribution. China: Heilongjiang (Harbin, Qiqihaer, Mt. Maoershan, Laoyeling), Jilin, Beijing, Hubei, Shandong (Mt. Taishan), Xinjiang, Qinghai, Sichuan; Korea (S); Japan; Russia (Siberia); Europe.

Host plants. Shrubs: *Caragana* sp., *Spiraea* sp., Farm crops: *Cannabis sativa* L., *Caragana sinica* (Buchoz) Rehder, *Gossypium* sp., *Hibiscus cannabinus*, *Medicago sativa* L. (Liu 1983a, Liu & Li 2002).

Remarks. Larva is polyphagous, causing damage to new shoot tips or sprout of host plants, including various farm crops and herbaceous plants (Liu, 1983).

36. *Clepsis rurinana* (Linnaeus, 1758)

Material examined. HL: 1 ♂, Harbin Forestry Demonstra-

tion Base of NEFU, 16 August 2002, Byun BK & Li CD; 2 ♂, 1 ♀, Laoshan, Mt. Maoershan, 20-23 July 2002, Byun BK & Li CD; 8 exx, Mt. Maoershan, 13-14 June 1998, Yan SC; 1 ♀, Early August 1996, Yan SC; 31 exx, 1 July 1998, Yan SC; 2 ♂, 1 ♀, Laoyeling, 4 July 1998, Yan SC; 3 ♂, 1 ♀, 4 July 1996, Yan SC; 86 exx, Early July 1995, Yan SC; 8 ♂, Early August 1995, Yan SC; 5 ♂, 4 ♀, Late June 1995, Yan SC; 2 ♂, Wuying, 17 July 1981.

Distribution. China: Heilongjiang (Harbin, Mt. Maoershan, Laoyeling, Wuying), Jilin, Beijing, Shandong, Qinghai, Jiangxi (Mt. Lushan), Hunan (South Hunan); Korea (S, N); Japan; Russia (Siberia); India; Asia Minor; Europe.

Host plants. *Anthriscus sylvestris* Hoffm., *Calystegia sepium* var. *americana* Matsuda, *Chelidonium majus* var. *asiaticum* (Hara) Ohwi, *Euphorbia* sp., *Lilium* sp., *Lonicera japonica* Thunb., *Rosa* sp., *Urtica* L. (Liu 1983a, Liu & Li 2002).

37. *Gnorismoneura orientis* (Filipjev, 1962) (Fig. 10)

Epagoge orinetis Filipjev, 1962, Trudy Zool. Inst., Leningr., 30: 370, figs. 2-4.

Gnorismoneura orinetis: Liu & Li, 2002, Fauna Sinica, (Insecta) 27: 137.

Wingspan 16 mm in female.

Female genitalia. Sterigma shallow. Antrum short, well sclerotized, with broad opening. Ductus bursae long, swelled just after antrum. Corpus bursae rounded without signum.

Material examined. HL: 1 ♀, Laoyeling, Early August 1995, Yan SC; 1 ♀, Jiagedaqi, 2 August 2002, Byun BK & Li CD. LN: 1 ♀, Mt. Qianshan, 15 July 1998, Yan SC.

Distribution. China: Heilongjiang (Laoyeling, Jiagedaqi), Liaoning (Mt. Qianshan), Shanxi, Shandong (Mt. Taishan); Russia.

Remarks. The species is reported for the first time from NE China.

38. *Lozotaenia forsterana* (Fabricius, 1781)

Distribution. China: Heilongjiang, Jilin; Europe.

Host plants. *Abies* sp., *Larix leptolepis* (S. et Z.) Gordon, *Ligustrum lucidum* Ait., *Lonicera japonica* Thunb., *Luzula* Dc., *Parthenocissus tricuspidata* (S. et Z.) P., *Picea jezoensis* Carr., *Vaccinium vitis-idaea* L. (Liu 1983a, Liu & Li 2002).

Remarks. Larvae are usually found in spring and early summer, feeding on broad leaf trees, but occasionally feed on needle leaved trees. Liu (1983a) indicated that larvae prefer the moistured forest.

39. *Pandemis chlorograptus* Meyrick, 1921

Distribution. China: Heilongjiang (Harbin, Yichun, Dailing), Beijing, Shaanxi (Ningwu), Jiangxi (Mt. Lushan), Sichuan (Mt. Emeishan, Mt. Qingchengshan), Fujian (Mt. Wuyishan), Zhejiang (Mt. Tianmushan); Japan.

Host plants. *Acer* spp., *Berberis* spp., *Betula* sp., *Citrus reticulata* Blanco, *Lysimachia clethroides* Duby, *Malus pumila* Mill, *Morus alba* L., *Prunus persica*, *Prunus* sp.,

Pyrus sp., *Quercus* spp., *Ribes* sp., *Sorbus* sp., *Tilia* sp., *Ulmus* L., and *Geum chiloense* (Liu & Li 2002).

Remarks. In Northeast China, larvae feed on host plants mainly in May to June. Pupation takes place on the leaves. Moths fly in Summer. It overwinters as larva (Liu 1983a).

40. *Pandemis cinnamomeana* (Treitschke, 1830)

Material examined. HL: 11 exx, Laoyeling, Early July 1995, Yan SC; 1 ♂, Liangshui, Early August 1995, 1 ♂, 27 June 1996, Yan SC; 1 ♂, Laoshan, Mt. Maoershan, 2 July 1998, 1 ♂, 4 July 1998, Yan SC.

Distribution. China: Heilongjiang (Dailing, Yichun, Mt. Maoershan, Xiaoxing'an Mountains, Laoyeling, Liangshui), Jilin (Mt. Changbaishan), Shanxi (Mt. Mianshan), Shaanxi (Mt. Taibaishan), Sichuan (Wolong), Jiangxi (Mt. Lushan), Hubei (Shennongjia), Hunan (Mt. Tianpingshan of Sangzhi County, South Hunan), Yunnan (Xiaocaoba); Korea (S, N); Japan; Russia; Europe.

Host plants. *Abies nephrolepis* Max., *Acer* sp., *Betula* sp., *Larix leptolepis* (S. et Z.) Gordon, *Malus pumila* M., *Prunus pseudocerasus*, *Pyrus* sp., *Quercus* sp., *Salix koreensis* A., *Sorbus* sp., *Vaccinium vitis-idaea* L. (Liu 1983a).

Remarks. Moths fly in mid-late June (Liu 1983a).

41. *Pandemis corylana* (Fabricius, 1794)

Material examined. HL: 1 ♂, Harbin, 25 August 1955; 1 ♂, 9 July 1957; 2 ♂, 16 July 1957; 1 ♂, 23 June 1962; 1 ♂, 31 June 1963; 1 ♂, 22 June 1964; 2 ♂, 4 July 1965; 1 ♂, 27 June 1987; 1 ♂, Laoshan, Mt. Maoershan, 21 July 2002, Byun BK & Li CD; 1 ♂, Jixi, Erdaohezi, 6 July 1981.

Distribution. China: Heilongjiang (Harbin, Yichun, Dailing, Mt. Maoershan, Xiaoxing'an Mountains, Jixi), Jilin (Mt. Changbaishan), Liaoning (Dandong), Beijing (Mt. Baihua, Sanbao), Shanxi (Mt. Mianshan), Shaanxi (Mt. Taibaishan, Ningshan), Sichuan (Mt. Emeishan, Wolong), Shanghai, Hunan (Central Hunan); Korea (S, N); Japan; Russia (Siberia); Europe.

Host plants. *Alnus* (Mill) Ehrh, *Betula* sp., *Corylus heterophyllus*, *Corylus heterophylla* F., *Fagus* sp., *Fraxinus mandshurica* R., *Larix leptolepis* (S. et Z.) Gordon, *Prunus* sp., *Quercus* sp., *Rubus idaeus* var. *microphyllus* Turcz., *Salix raddeana* Laksch., *S. subfragilis* Anderss., *S. viminalis* L., and various herbaceous plants (Liu, 1983). *Betula* sp., *Corylus heterophyllus*, *Fagus* sp., *Fraxinus mandshurica* R., *Rubus idaeus* var. *microphyllus* Turcz. (Liu & Li 2002).

Remarks. It has one or two generations a year and overwinters as larva. They resume to feed on the host plants in late May of the next year and pupation occurs in mid-late June. Larva tie two or three leaves to make a triangular shelter and stay within it. At night, larva moves out to attack its host plant. It moves to another place, when they feed out shoot tip. Moths fly in early July in Province Heilongjiang (Liu 1983a).

42. *Pandemis curvipenita* Liu et Bai, 1982

Distribution. China: Jilin (Mt. Changbaishan).

Remarks. Moths appear in August in Mt. Changbaishan, Province Jilin (Liu & Li 2002).

43. *Pandemis dumetana* (Tretschke, 1825)

Material examined. HL: 27exx, Liangshui, Early August 1995, 2 ♂♂, 28 June 1996, Yan SC; 10exx, Laoyeling, Early August 1995, Yan SC; 16exx, Heli, Mid-July 1995, Yan SC; 4 ♂♂, 1 ♀, Mt. Maoershan, 13-14 June 1996, 2 ♂♂, 2 ♀♀, 2-4 July 1998, Yan SC, 3 ♂♂, 14 August 1974; 1 ♂, Wuying, 17 July 1981; 2 ♂♂, 1 ♀, Jiagedaqi, 2 August 2002, Byun BK & Li CD.

Distribution. China: Heilongjiang (Yichun, Dailing, Wuying, Mt. Maoershan, Xiaoxing'an Mountains, Liangshui, Laoyeling, Jiagedaqi), Jilin (Mt. Changbaishan), Beijing (Mt. Baihuashan), Hubei (Shennongjia), Sichuan (Mt. Emeishan, Wolong), Qinghai (Xining), Yunnan; Korea (S); Japan; Russia; India (North); Europe.

Host plants. *Cerylus heterophyllus*, *Chenopodium album*, *Dictamnus dasycarpus* Turcz., *Fraxinus mandshurica* Rupr., *Glycine max* Merr., *Juglans mandschurica* M., *Lysimachia clethroides* Duby, *Malus pumila* M., *Mentha* L., *Parthenocissus tricuspidata* (S. et Z.) P., *Sanguisaria officinalis* L., *Spiraea salicifolia* L., *Thalictrum* sp., *Agastache rugosus* (Fisch. et Mey.) O.Ktze. (Liu & Li 2002).

44. *Pandemis heparana* (Denis et Schiffermüller, 1775)

Material examined. HL: 6 ♂♂, Harbin, 8 July 1964; 6exx, Liangshui, Early August 1995, Yan SC; 18exx, Laoyeling, Early July 1995, 2 ♀♀, Early August 1995, 1 ♀, 3 July 1996; 1 ♂, 1 ♀, 4 July 1996, 11 exx, 4, July 1998, Yan SC; 48exx, Heli, Mid-July 1995, Yan SC; 2 ♂♂, Laoshan, Mt. Maoershan, 13 June 1998, 12 exx, 1 July, 1998, Yan SC; 4 ♂♂, Mt. Maoershan, Early August 1996, 2 ♂♂, 1 ♀, 2 July 1998, Yan SC; 10 ♂♂, 1 ♀, Jianlagou, 30 June 1998, Yan SC; 2 ♂♂, Wuying, 17 August, 1981. JL: 4 ♂♂, Jingyuetan, 11-15 July 1975.

Distribution. China: Heilongjiang (Harbin, Mts. Xiaoxing'anling, Liangshui, Laoyeling, Mt. Maoershan, Jianlagou, Wuying), Shaanxi (Mt. Tianmushan, Ningshan), Shanxi (Mt. Mianshan), Beijing (Mt. Baihuashan), Jilin (Mt. Changbaishan, Jingyuetan), Liaoning (Dandong), Sichuan (Mt. Emeishan), Widespread in Northeast, North, Central, and Northwest of China; Korea (S, N); Japan; Russia; India; Europe.

Host plants. *Alnus japonica* var. *rufa* Nak., *Cerylus heterophyllus*, *Fagus* sp., *Fraxinus mandshurica* R., *Humulus lupulus* L., *Lysimachia clethroides* Duby, *Malus pumila* Mill., *Morus alba*, *Prunus armeniaca* var. *ansu* Max., *Prunus persica*, *Prunus pseudocerasus*, *Pyrus* sp., *Quercus* sp., *Salix koreensis* A., *Sorbus* sp., *Spiraea* sp., *Tilia* sp., *Ulmus* sp., *Vaccinium vitis-idaea* L. (Liu & Li 2002).

Remarks. There are two generations in apple farm of Province Liaoning. It overwinters as larva within the bark of trunk. They resume to act in April. Moths fly in June to mid-July and appear again in mid-August to late September (Liu 1983a).

45. *Pandemis monticolana* Yasuda, 1975

Material examined. HL: 1 ♂, Harbin, 2 August 1964; 12exx, Laoyeling, Early July 1995, 1 ♂, Early August 1995, Yan SC; 1 ♂, Xingcheng, 25 June 1960; 1 ♂, Laoshan, Mt. Maoershan, 13 June 1998, Yan SC; 1 ♀, Liangshui, 28 June 1996, Yan SC.

Distribution. China: Heilongjiang (Harbin, Mt. Maoershan, Laoyeling, Xingcheng, Liangshui), Jilin (Mt. Changbaishan); Korea (S); Japan.

46. *Pseudargyrotoza aeratana* (Kennel, 1910)

Material examined. HL: 1 ♀, Jianlagou, 30 June 1998, Yan SC; 1 ♀, Laoyeling, Late June 1995, Yan SC.

Distribution. China: Heilongjiang (Dailing, Jianlagou, Laoyeling), Jilin (Mt. Changbaishan), Beijing (Mt. Baihuashan), Shandong; Korea (S); Japan; Russia (Ussuri).

47. *Pseudargyrotoza conwagana* (Fabricius, 1775) (Fig. 11)

Wingspan 11-13mm. The species can be distinguished from the allies by the shape of sacculus and uncus in the male genitalia.

Male genitalia. Uncus short, well sclerotized. Socii elongate. Valva elongate, slightly narrower towards termination; sacculus slender, developed along the ventral margin of valva, with shortly protruded termination. Aedeagus short, slender with several teeth beyond middle dorsally.

Female genitalia. Papillae analis rather small, narrow. Sterigma weak, elongate, rather broader at entrance. Antrum short. Ductus bursae rather long. Corpus bursae elongate, signum weakly developed.

Material examined. HL: 1 ♂, 2 ♀♀, Mt. Maoershan, 1 July 1998, Yan SC.

Distribution. China: Heilongjiang (Mt. Maoershan), Jilin (Mt. Changbaishan), Shaanxi (Ningshan), Sichuan (Mt. Qingchengshan); Korea (S); Japan; Russia (Siberia); Asia Minor; Europe.

Host plants. *Ligustrum lucidum* Ait., *Berberis* spp., *Fraxinus mandshurica* R. (Liu 1983a, Liu & Li 2002).

Remarks. It is a first record from Heilongjiang in this study.

48. *Ptycholoma imitator* (Walsingham, 1900)

Material examined. HL: 5 ♂♂, 4 ♀♀, Heli, Mid-July 1995, Yan SC; 1 ♀, Heli, Early August 1995, Yan SC; 4 ♀♀, Liangshui, 15 July 1996, Yan SC; 1 ♂, 2 ♀♀, Laoyeling, 5 July 1996, Yan SC.

Distribution. China: Heilongjiang (Dailing, Heli, Liangshui, Laoyeling), Jilin (Mt. Changbaishan), Fujian (Wuyi); Korea (S, N); Japan; Russia (Amur, Siberia).

Host plants. *Malus pumila* M., *Prunus pseudocerasus* (Liu 1983a, Liu & Li 2002).

49. *Ptycholoma lecheana* (Linnaeus, 1758)

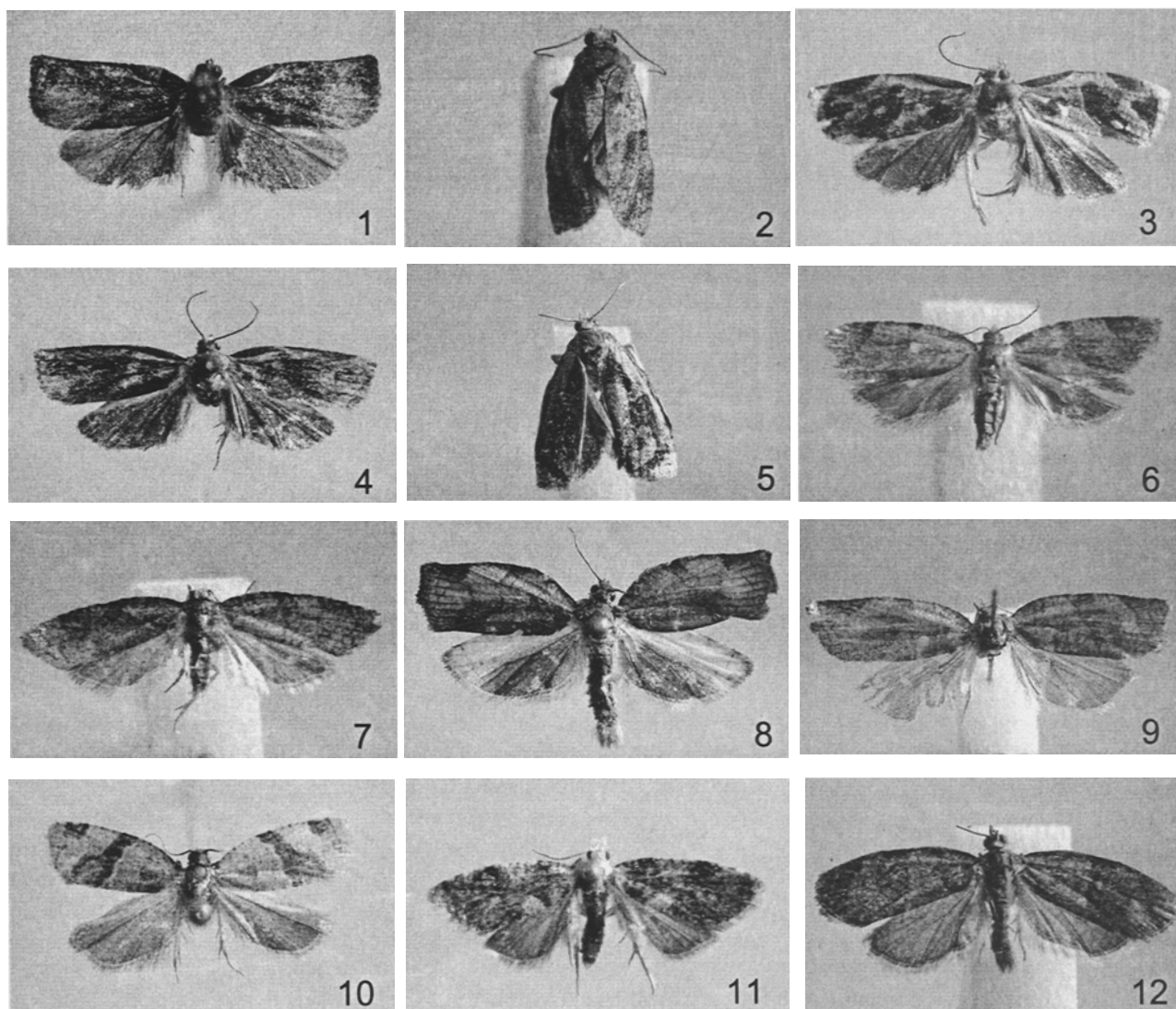
Distribution. China: Heilongjiang (Yichun, Dailing); Jilin (Mt. Changbaishan), Hunan (Mt. Tianpingshan of Sangzhi

County, West Hunan); Korea (S, N); Japan; Russia (Amur, Ussuri); Asia Minor; Europe.

Host plants. *Acer* sp., *Betula* sp., *Crataegus pinnatifida* B., *Fagus* sp., *Larix leptolepis* (S. et Z.) Gordon, *Populus* sp., *Prunus padus* L., *Pyrus* sp., *Quercus* sp., *Salix ko-reensis* A., *Sorbus* sp., *Tilia* sp., *Ulmus* sp. (Liu 1983a, Liu

& Li 2002).

Remarks. It has one generation a year in the Province Jilin and overwinters as larva within a web-spinning shelter at the crevice of barks of *Pyrus* sp. They resume to attack to host plants from mid-April. Moths fly in late May to early June in China (Liu 1983a, Liu & Li 2002).



Figs. 1-12: Adults: 1. *Archips asiaticus* (Walsingham, 1900); 2. *Archips dichotomus* Falkovitsh, 1965; 3. *Archips fuscopreanus* Walsingham, 1900; 4. *Archips similis* (Butler, 1879); 5. *Archips viola* Falkovitsh, 1965; 6. *Argyrotaenia angustilineata* (Walsingham, 1900); 7. *Capua vulgana* (Frölich, 1828); 8. *Choristoneura evanidana* (Kennel, 1901); 9. *Choristoneura longicellana* (Walsingham, 1900); 10. *Gnorismoneura orientis* (Filipjev, 1962); 11. *Pseudargyrotoza conwagana* (Fabricius, 1775); 12. *Syndemis musculana* (Hübner, 1799).

50. *Ptycholoma micantana* (Kennel, 1900)

Distribution. China: Heilongjiang (Dailing); Korea (N); Russia (Primorye, Amur).

51. *Ptycholoma plumbeolana* (Bremer, 1864)

Material examined. HL: 4 ♂♂, 1 ♀, Liangshui, 27 June 1996, Yan SC.

Distribution. China: Heilongjiang (Dailing, Liangshui); Korea (N); Russia (Primorye, Amur).

52. *Ptycholomoides aeriferanus* (Herrich-Schäffer, 1851)

Material examined. HL: 3 ♂♂, 1 ♀, Laoshan, Mt. Maoershan, 20-23 July 2002, Byun BK & Li CD. 2 ♂♂, 3 ♀♀, 2 July 1998, Yan SC; 1 ♂, Mt. Maoershan, 24 July 1995, Yan

SC, 1 ♂, 1 ♀, 1 July 1998, Yan SC; 4 ♀ ♀, Liangshui, 13 July 1996, Yan SC, 2 ♂ ♂, 5 ♀ ♀, 27 June 1996, Yan SC; 1 ♀, Wuying, 2 July 1980; 7 ♂ ♂, 5 ♀ ♀, Laoyeling, Early July 1995, Yan SC; 1 ♀, Jianlagou, 30 June 1998, Yan SC; 2 ♂ ♂, 6 ♀ ♀, Heli, Mid-July 1995, Yan SC; 1 ♀, Jixi, Erdaohezi, 6 July 1981.

Distribution. China: Heilongjiang (Dailing, Mt. Maoershan, Liangshui, Wuying, Jianlagou, Heli, Jixi); Korea (S, N); Japan; Russia (Ussuri, Amur); Europe.

Host plants. *Acer acuminatum*, *Betula* sp., *Larix leptolepis* (S. et Z.) Gordon (Liu 1983a, Liu & Li 2002).

Remarks. In Heilongjiang, it occurs one generation per year and overwinters as young larva in bud, crevice of barks of host plant, or under fallen leaves. These overwintered larvae start feeding on host plants in mid-April and pupate in late May. Moths fly in late June. Female lay eggs on needle, forming an arrangement of one or two lines. Egg is oval, light yellow, and transparent (Liu 1983a).

53. *Syndemis musculana* (Hübner, 1799) (Fig. 12)

Wing span 18 mm in male, 20 mm in female.

Male genitalia. Uncus rather long, rounded terminally. Socii rather small. Valva broad, tapered dorsally; sacculus well sclerotized, thick, rounded near middle ventrally, reaching to near dorsal end of valva. Transtillae broader laterally, fairly narrower at middle. Aedeagus long, with sharp termination, bearing numerous dents ventrally.

Female genitalia. Sterigma moderate, rather elongated terminally. Antrum short, strong. Ductus bursae long, with short cistum at middle. Corpus bursae small, rounded with rather small signum.

Material examined. HL: 3 ♂ ♂, Jiagedaqi, Early June 1996, 2 ♂ ♂, 11 June 1997, Yan SC. IM: 4 ♂ ♂, 12 ♀ ♀, Alihe, Mid-June 1995, Yan SC.

Distribution. China: Heilongjiang (Yichun, Jiagedaqi), Jilin (Mt. Changbaishan), Inner Mongolia (Alihe); Korea (S, N); Japan; Russia (Amur); Europe; N. America.

Host plants. *Agastache rugosa* (Fisch. et Meyer) O. Kuntze, *Agrimonia pilosa* Ledeb., *Betula* sp., *Corylus heterophyllus*, *Malus pumila* M., *Pyrola rotundifolia* L., *Quercus* sp., *Rubus idaeus* var. *microphyllus* Turcz., *Salix koreensis* A., *Scrophularia ningpoensis* Hemsl., *Sorbus* sp., *Stachys palustris* L., *Tilia* sp. (Liu 1983a, Liu & Li 2002).

Remarks. The larva is yellowish or grayish green. Head and pronotum are yellowish. They begin to overwinter in September to October. The overwintered larvae pupate in early spring. Moths fly in June (Liu, 1983). It is a first record to Inner Mongolia in this study.

54. *Tosirips perpulchrana* (Kennel, 1900)

Material examined. HL: 3 ♂ ♂, Liangshui, 27 June 1996, Yan SC.

Distribution. China: Heilongjiang (Liangshui), Jilin, Liaoning; Korea (S, N); Japan; Russia (Amur, Siberia); Europe.

Host plant. *Salix koreensis* A. (Liu 1983a).

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